

empirical relationships, all of which are clearly reproduced and labelled. The bibliography contains over 800 references, one-third of which are post-1990 (for comparison, the 1984 edition contains just over 400 references, only about 20 of which post-date 1980). Notwithstanding the imbalance between form and

process, Knighton's expert synthesis of such a vast literature will be welcomed by students and teachers alike.

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INTRODUCTION TO GEOMORPHOLOGY by Frank Ahnert, Edward Arnold, London, 1998. No. of pages: viii + 352. Price: £19.99 (pb). ISBN 0-340-69259-6.

Geomorphology, the science investigating the landforms of the Earth, today offers the practitioner or student the opportunity to apply a great range of skills to a large set of complex multivariate problems beset with issues of scale and legacies from the past. The development of an integrated introduction to this wide-ranging science from the fundamental exogenetic–endogenetic controls of landform characteristics to a lucid review of the questions posed by geomorphology and the methods available to solve them is now a challenging task for a single author. The risk of merely providing a list of classifications and concepts is always present, but in this volume it has been avoided through the inclusion of much drawn directly from the author's own experience and writing. As with Michael Thomas' *Geomorphology in the Tropics*, this book is also helped by many fine illustrations from the author's extensive photographic collection.

Frank Ahnert is one of the foremost international geomorphologists, as widely known in the English-speaking world as he is in Germany. The knowledge he has of the German and English language literature is put to great effect in his book, drawing on the concepts and points-of-view that have influenced geomorphology in Germany, Britain and North America. Thus definitions and classifications are prominent, with some excellent accounts of the variety of springs, waterfalls and valley heads. Equally, attention is given to process–response systems and dynamic equilibrium with frequent reference to process–form relationships.

One of the great strengths of the book is the way the author uses versions of his SLOP3D model to explain the evolution of different landform types. This works particularly well for the discussion of process-specific slope forms in Chapter Nine. Another strength is the

discussion of the role of structure and structural landforms in Chapter Twenty. Most of this is extremely clear. Much attention is given to cuesta landscapes, prominent in Europe, Britain and North America, with elegant use of the SLOP3D model. Unfortunately, there is a lapse in the general high quality of illustrations in the use of an over-reduced, elaborately shaded, map of the south German cuesta scarplands.

The sections dealing with the links between hillslope processes and channel processes are stimulating, with the discussion of how the slope hollow functions as a *coupling point* between the slow, almost continuous creep processes and the intensive, but rare, removal of the debris by mudflows. The irregular removal of debris and differences in associated spatial magnitude frequency are dealt with well. Here lies the chief attraction of the book to the practising geomorphologist, the summaries of Frank Ahnert's own work, the applications of his own techniques and observations and the insights to problems derived from his wide experience.

The book provides a good review of the key literature in geomorphology, but it would be difficult to use as the sole text in a geomorphology course as some sections are just too brief, especially those on karst, glaciers and coasts. The eight pages on applications of geomorphology would probably have been better left out as they do little more than indicate the main publications in the field, and do not emphasize how much of today's activity in geomorphology is directly applied and how working on applied problems feeds back into greater general geomorphological understanding. This book should be available to students, should be read by all who want a broad international perspective of the discipline and by anyone interested in the way one of the leading geomorphologists of the last five decades sees his chosen field of study.

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